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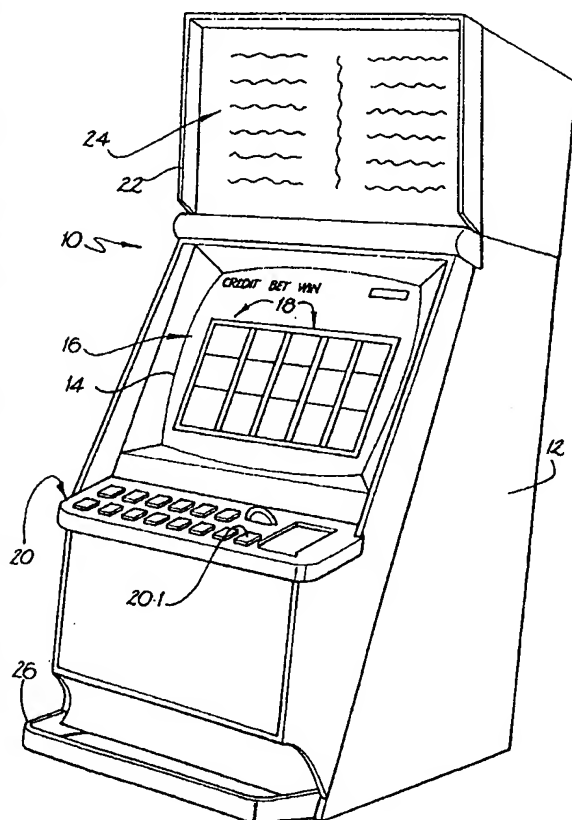
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(54) Title: A GAMING MACHINE WITH SUBSTITUTE SYMBOLS



(57) Abstract: A gaming machine includes a display on which a plurality of display of display positions are displayed. A game controller is arranged to control images displayed on the display. The controller also controls playing of a game on the machine wherein a plurality of symbols are randomly selected and displayed on the display such that if a winning combination results, the machine pays a prize. The controller is operable, upon the occurrence of a predetermined triggering event, to generate a bonus symbol which is displayed in a first display position and, thereafter in at least one other display position. In predetermined circumstances, when the bonus symbol moves from a preceding display position, a residual symbol remains at the preceding display position and, when the bonus symbol appears at a subsequent display position, both the original bonus symbol and the residual bonus symbol operates as substitute symbols in their display positions.

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## A gaming machine with substitute symbols

### Field of the Invention

The present invention relates to a gaming machine. More particularly,  
5 the invention relates to a gaming machine of the type commonly known as a slot machine, a fruit machine or a poker machine.

### Background to the Invention

Players who regularly play gaming machines of the type in question  
10 quickly tire of particular games. It is therefore necessary for manufacturers of these machines to introduce innovative game features that add interest to the games provided on such machines in order to keep the players amused and interested and therefore willing to continue playing the games.

These machines have become well known locally and abroad over a  
15 number of years. More particularly, the machines have recently gained considerable popularity throughout Australia with substantial amounts of money being wagered on these machines. There is a growing tendency for state governments to legalise the use of gaming machines by licensing operators, with resulting revenue gains through licence fees and taxation of  
20 moneys invested. The licensed operation of gaming machines is the subject of state legislation and regulation. For example, a minimum of 85% of monies invested must be returned as winnings. Manufacturers of gaming machines therefore must design their machines around these regulatory controls.

25 With the growth that has occurred in the gaming machine market, there is intense competition between manufacturers to supply various existing and new venues. When selecting a supplier of gaming machines the operator of a venue will often pay close attention to the popularity of various games with their patrons. Therefore, gaming machine manufacturers are  
30 keen to devise games which are popular with players as a mechanism for improving sales.

Various strategies have been tried in the past to make games more enticing to players such as, for example, the commonly known double-up feature whereby, if a player wins a particular game, that player can then risk  
35 the winnings of the game in a double-or-nothing mode in which they gamble

on a subsequent, and often different, game such as whether a red or black card will be the next card drawn.

Other techniques adopted in the past have been to provide complexity in the numbering and combinations of indicia which would result in a win, thereby hoping to convince the player that there is a greater chance of winning and to keep their interest in a particular game.

The present invention provides a game feature in which, in response to a trigger condition, a substitute or substitute symbol is introduced, the substitute symbol having additional features.

10

### Summary of the Invention

According to the invention, there is provided a gaming machine which includes:

a display means on which a plurality of display positions are displayed; and

a game control means arranged to control images displayed on the display means, the control means also controlling playing of a game on the machine wherein a plurality of symbols are randomly selected and displayed on the display means such that, if a winning combination results, the machine pays a prize, the control means being operable, upon the occurrence of a predetermined triggering event, to generate a bonus symbol which is displayed in a first display position and, thereafter, in at least one other display position and, in predetermined circumstances, when the bonus symbol appears at one display position, a residual symbol remains and, when the bonus symbol appears at a subsequent display position, both the original bonus symbol and the residual symbol are taken into consideration in determining an award.

The present invention is applicable to video gaming machines of the traditional style in which the display means comprises a video simulation of a set of rotatable reels, each carrying a plurality of symbols. However, the invention is equally applicable to video draw poker machines in which a poker hand is displayed on the screen, the cards of the hand being selected from a standard 52 or 53 card deck, and other games such as keno, bingo, etc.

The bonus symbol may be any suitable bonus symbol such as a substitute/substitute symbol, a scatter symbol, a progressive symbol, second

screen feature symbol, or the like. For ease of explanation, the invention will be described with reference to the special symbol being a substitute symbol. The substitute symbol may be triggered when a predetermined combination of symbols is "spun-up". Instead, the substitute symbol may be triggered  
5 when a special symbol is displayed in a particular position on the display means, either alone or in conjunction with one or more other, special symbols also at particular display positions. For example, the feature may be triggered by a predetermined first symbol appearing in the first (or left hand) column of the display and a second, different symbol appearing in the last (or  
10 right hand) column of the display. The predetermined first symbol and second symbol may each be a background symbol arranged behind another symbol.

The substitute symbol may be any suitable symbol.

For example, the substitute symbol may be an arrow which is "shot" at  
15 the display and, when it hits one of the symbols, it substitutes as a substitute in that position. If the original symbol then "ignites", the "flames" serve as the residual symbol. Instead, the arrow may be a "flaming arrow" which strikes one of the symbols. Animated flames may be displayed on the symbol where the arrow has pierced that symbol. The flames may substitute for all  
20 symbols except the scatter and any prizes in which the flames substitute will be paid. The flames may either continue to burn on that symbol for the duration of the feature or it may die out before the following arrow is fired. If the flames continue to burn, it continues to act as a substitute symbol throughout the feature whereas, if the flames die out before the next arrow is  
25 fired, it no longer acts as a substitute symbol.

In another embodiment, the substitute symbol may be in the form of a bird which migrates across the display to substitute for the conventional symbols of the reels. Where the bird lays an egg, the egg is the residual symbol.

30 In yet a further embodiment, the substitute symbol may be in the form of a penguin which migrates sequentially through each position on the display. In predetermined positions, a form of the penguin may be left behind which serves as the residual symbol.

**Brief Description of the Drawings**

The invention is now described by way of example with reference to the accompanying drawings in which:

Figure 1 shows a three dimensional view of a gaming machine, in accordance with the invention;

Figure 2 shows a block diagram of a control circuit of the gaming machine;

Figure 3 shows a display screen of a game played on the gaming machine;

Figures 4 to 7 show various representations of display screens of an embodiment of a feature associated with the game of Figure 3;

Figure 8 shows a display screen of another embodiment of a game played on the gaming machine; and

Figures 9 to 12 show various representations of display screens of an embodiment of a feature associated with the game of Figure 8.

**Detailed Description of the Drawings**

In Figure 1, reference numeral 10 generally designates a gaming machine including a game, in accordance with the invention. The machine 10 includes a console 12 having a video display unit 14. The video display unit 14 includes a screen 16. Reels or reel strips 18 are simulated on the screen 16. A keypad 20 is provided on the console 12. The keypad 20 is operable to actuate "spinning" of the reel strips 18.

A top box 22 is mounted above the screen 16. The top box 22 displays one or more paytables 24.

A coin tray 26 is mounted beneath the console 12 for cash payouts from the machine 10.

As shown in Figure 2 of the drawings, a control system 30 is illustrated. A program which implements the game and user interface is run on a processor 32 of the control system 30. The processor 32 forms part of a controller 34 which drives the screen 16 of the video display unit 14 and which receives input signals from sensors 36. The sensors 36 include sensors associated with the keypad 20. Instead, or in addition, the sensors 36 could include touch sensors mounted in the screen 16.

The controller 34 also receives input pulses from a mechanism 38 indicating that a player has provided sufficient credit to begin playing. The mechanism 38 may be a coin input chute, a bill collector, a credit card reader, or any other type of validation device. Finally, the controller 34  
5 drives a payout mechanism 40 which, for example, may be a coin hopper for feeding coins to the coin tray 26 to pay a prize once a predetermined combination of symbols carried on the reels 18 appears on the screen 16.

Referring now to Figures 3 to 7 of the drawings, various screen displays of the screen 16 of a feature, are illustrated. In this description, it is assumed  
10 that any winning combination on a payline pays a prize as opposed to, for example, only a left-to-right combination. During the feature, the only prizes that are paid are for combinations in which the arrow and/or flames substitute. This applies also in respect of the embodiment described below with reference to Figures 8 to 12 of the drawings.

Once the button 20 is actuated, the reels 18 are spun up to form a display such as shown in Figure 3 of the drawings. As illustrated, various paylines 42 are provided on which combinations of symbols pay a prize. Assuming that a predetermined trigger condition has been met, a substitute symbol is generated which, in the embodiment illustrated, is an arrow (not  
20 shown). Thus, as shown in Figure 4, the arrow pierces the symbol "9" in reel 18.3 to leave a "hole" illustrated at 44. Thus, in this embodiment, the arrow as represented by the hole 44 acts as a substitute symbol so that a prize is paid for five of a kind (Kings).

A second step of the feature is illustrated in Figure 5 of the drawings, where the arrow hits the King symbol in reel 18.2. This symbol 46 ignites to  
25 leave a representation of flames 48 which represents a residual substitute symbol. Then, the arrow 44 is fired at the symbol "10" in reel 18.3 which, in turn, bursts into flames 48. Once again, the flames 48 remain behind and the arrow 44 strikes the Jack symbol in reel 18.1 as illustrated in Figure 7 of the drawings which does not ignite.

As a result of the combination illustrated in Figure 5 of the drawings and before the second arrow strikes the symbol "10" in reel 18.3, the flames act as a substitute symbol such that a payment is made for four Jacks on payline four and for four Kings on payline one. In addition, the flames act as  
35 a substitute symbol for a combination of three Queens on payline five.

When the arrow strikes the symbol 10 in reel 18.3, various additional combinations are created. Thus, due to the residual flames 48 in reel 18.2 (as described above with reference to Figure 5), and the new substitute symbol 44, (as illustrated in Figure 6 of the drawings), various additional winning combinations are created, 4 x King on payline one, 3 x Queen and 3 x Jack on payline two, 4 x Jack on payline four and 4 x Queen and 3 x King on payline five.

Finally, when the arrow strikes the Jack symbol in reel 18.1 as shown in Figure 7 of the drawings, a prize is then paid for 4 x Kings on payline one, 4 x Queens on payline two, 3 x Jacks on payline two, 4 x Jacks and 3 x Kings on payline four as well as 4 x Queens and 3 x Kings on payline 5.

Referring now to Figures 8 to 12, another embodiment of the invention described above with reference to Figures 3 to 7, is illustrated. With reference to Figures 3 to 7, like reference numerals refer to like parts, unless otherwise specified. However, this embodiment pays for prizes appearing in left to right and/or right to left combinations on a payline only as opposed to the "any" combination of the previous embodiment.

In this embodiment of the invention, the trigger condition is the presence of a background "haystack" symbol 50 spun up on reels 18.1 and 18.5 at the same time. When this occurs, as illustrated in Figure 8 of the drawings, the feature is triggered.

In this embodiment, a message (not shown) is displayed on the screen 16 to indicate that the player should hit a "Fire" button 20.1 (Figure 1) on the keypad 20.

The hitting of the "Fire" button initiates the feature. An animated arrow, as illustrated at 52 in Figure 9 of the drawings, flies up from a bottom of the screen 16 over the currently displayed reels 18 and comes to rest in one of the symbols. In this case, the arrow 52 strikes the "Wagon" symbol on reel 18.3.

Assuming nine lines are being played, when the arrow 52 strikes the "Wagon" symbol in reel 18.3, the arrow 52 ignites and substitutes for the "Wagon" symbol. Accordingly, in this embodiment, a win is paid for 3 x King and 3 x 9 on payline seven.

The feature comprises the firing of a number of arrows, for example, seven arrows. Accordingly, once the first arrow 52 has been fired, and prizes

paid, as the case may be, a second arrow 54 (Figure 10) is fired. In this case, the arrow 52 burns out and dies down. In other words, the arrow 52 remains in the "Wagon" symbol on reel 18.3 but no longer substitutes.

The arrow 54 strikes the "Queen" symbol on reel 18.3 and ignites. In  
5 this case, a win is paid for 3 x King and 3 x 9 on the third payline.

When a following arrow 56 is "fired" it strikes the "9" symbol on reel  
18.4. The arrow 54 continues burning in the "Queen" symbol on the reel 18.3  
and, accordingly, the flaming arrow 54 continues to substitute. Hence, in the  
embodiment shown in Figure 11 of the drawings, a win is paid for 4 x King  
10 and 3 x 9 on the third payline.

Yet a further arrow 58 is fired at the reels 18 and strikes the "9" symbol  
on reel 18.5 where it substitutes. Due to the fact that both the preceding  
arrows 54, 56 continue burning, they also constitute substitute symbols.  
Accordingly, in respect of the embodiment shown in Figure 12 of the  
15 drawings, a win is paid for 5 x King on payline three, 3 x Wagon on payline  
seven, and all three of a kind on payline three except Kings and Scatters, i.e.  
the three burning arrows 54, 56 and 58 substitute for all symbols except  
scatters.

The feature is continued until all the flaming arrows have been fired.  
20 When this occurs the message "Feature Completed" is displayed. All wins  
from the feature are accumulated on the win meter of the gaming machine  
10.

Instead of the flaming arrows, a goose or duck could be made to  
"waddle" from one position to the other and to pay prizes in which it  
25 substitutes. The goose or duck may or may not lay an egg at its previous  
symbol position before moving to the next position. The egg then acts as an  
additional or residual substitute symbol to be paid in addition to wins with  
the bird substituting at its current position.

In yet another embodiment of the invention, relating to the applicant's  
30 "Penguin Pays" game certain triggering combinations commence a feature  
involving an animated skating penguin. The animations start with the  
penguins skating to the top left-hand symbol on the screen 16 and  
progressively skating to each of the fifteen symbol positions on the screen 16.  
At each position, all wins on which the skating penguin substitutes are paid.  
35 The embodiment of the new invention extends this feature also to include



other penguins being left behind at random positions that the skating penguin visits. Every time the skating penguin moves to a new position, all wins will be paid in which the left-behind penguins substitute in addition to those wins with the skating penguins substituting.

- 5         Prizes are only paid during each step of the feature for combinations in which the substitute symbol and/or residual substitute symbol substitutes.

Hence, it is an advantage of the invention that a game is provided which will provide more entertainment for players and will result in increased payouts to the players.

- 10        It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

CLAIMS

1. A gaming machine which includes:  
a display means on which a plurality of display positions are displayed; and  
5 a game control means arranged to control images displayed on the display means, the control means also controlling playing of a game on the machine wherein a plurality of symbols are randomly selected and displayed on the display means such that, if a winning combination results, the machine pays a prize, the control means being operable, upon the occurrence  
10 of a predetermined triggering event, to generate a bonus symbol which is displayed in a first display position and, thereafter, in at least one other display position and, in predetermined circumstances, when the bonus symbol appears at one display position, a residual symbol remains and, when the bonus symbol appears at a subsequent display position, both the original  
15 bonus symbol and the residual symbol are taken into consideration in determining an award.
2. The gaming machine of claim 1 in which the bonus symbol is a substitute symbol.
3. The gaming machine of claim 2 in which the substitute symbol is  
20 triggered when a predetermined combination of symbols is displayed.
4. The gaming machine of claim 2 in which the substitute symbol is triggered when a special symbol is displayed in a particular position on the display means.
5. The gaming machine of claim 4 in which, to trigger the substitute  
25 symbol, the special symbol must appear in conjunction with at least one other special symbol, the, or each, other special symbol also having to appear at particular display positions.
6. The gaming machine of claim 5 in which each of said special symbols is a background symbol arranged behind another symbol.

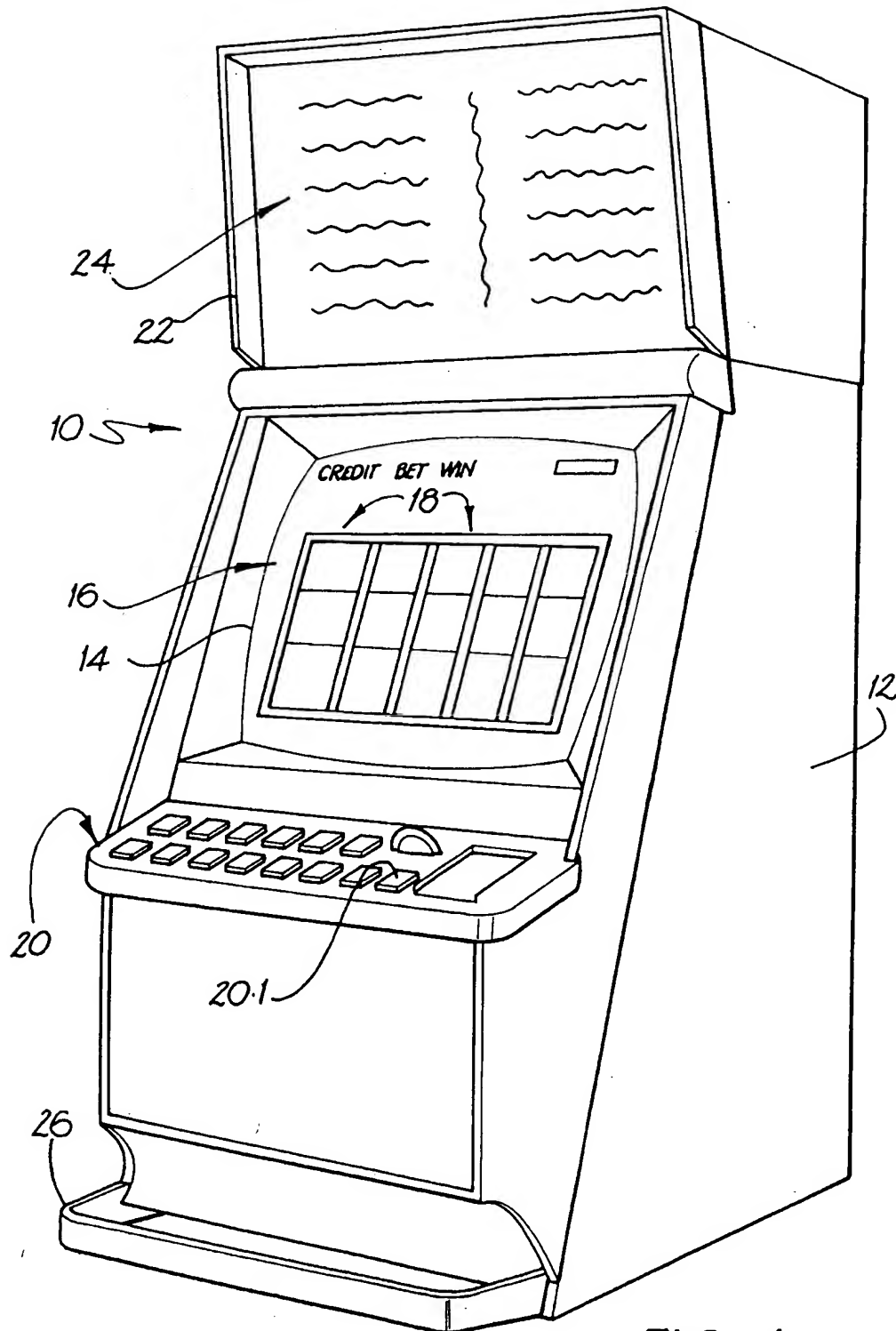


FIG. 1

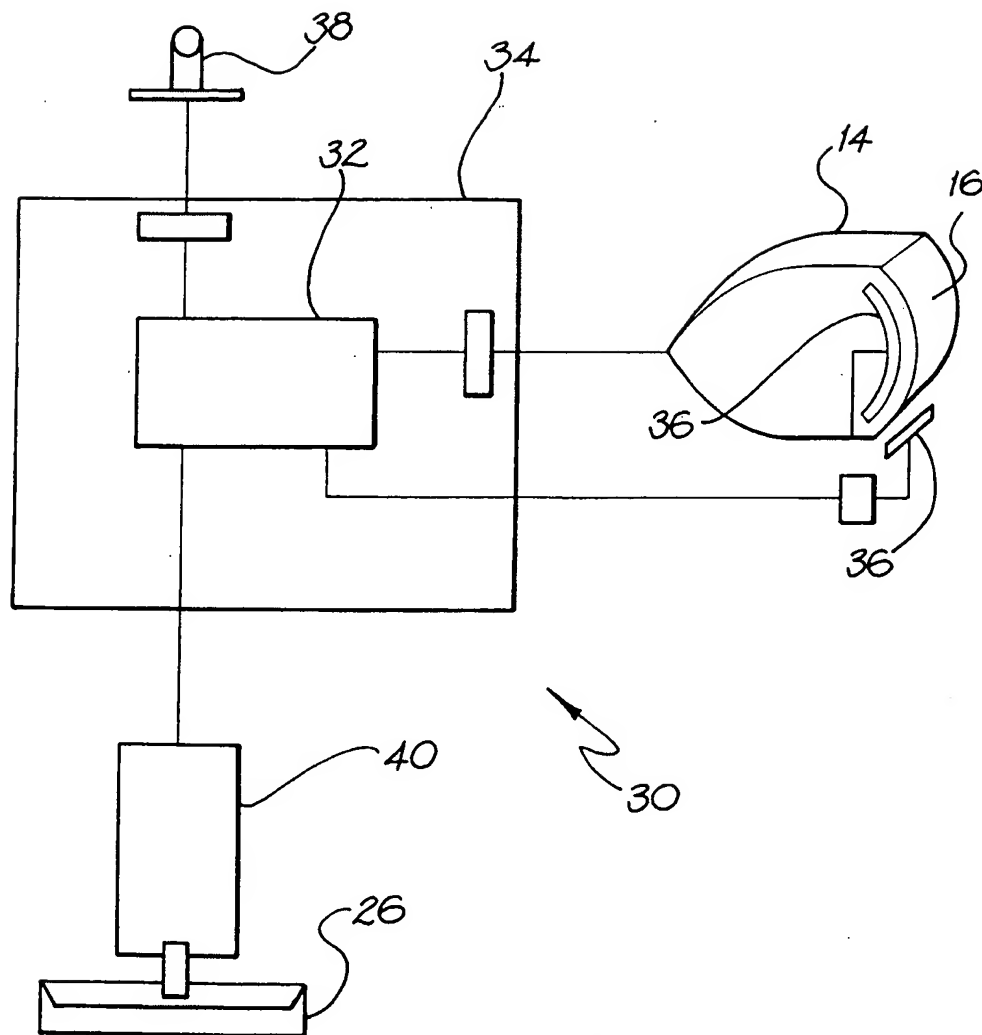


FIG. 2

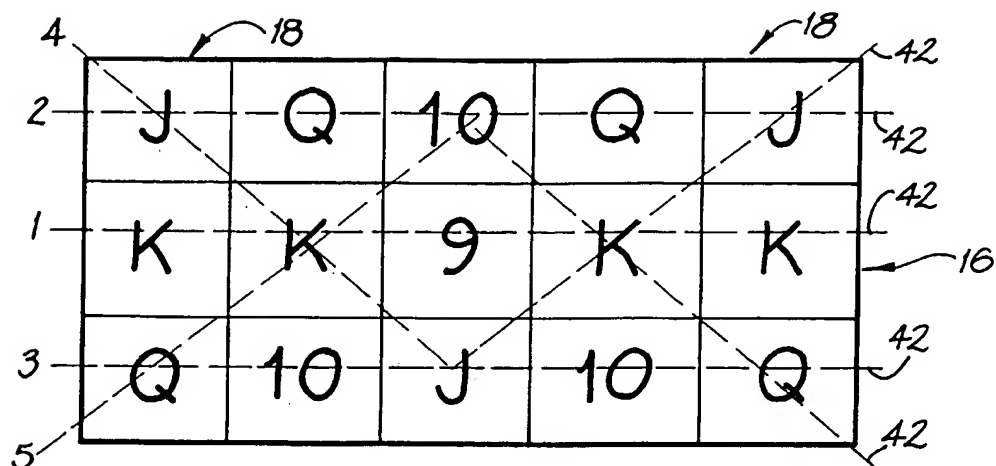


FIG. 3

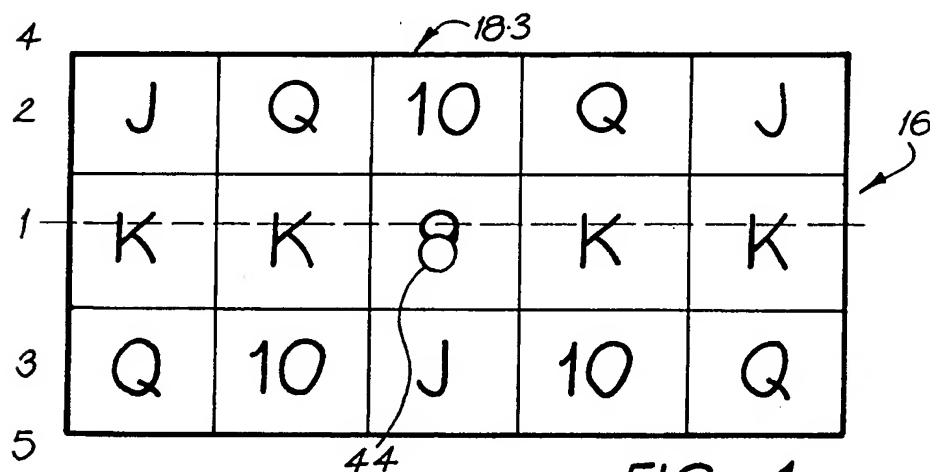


FIG. 4

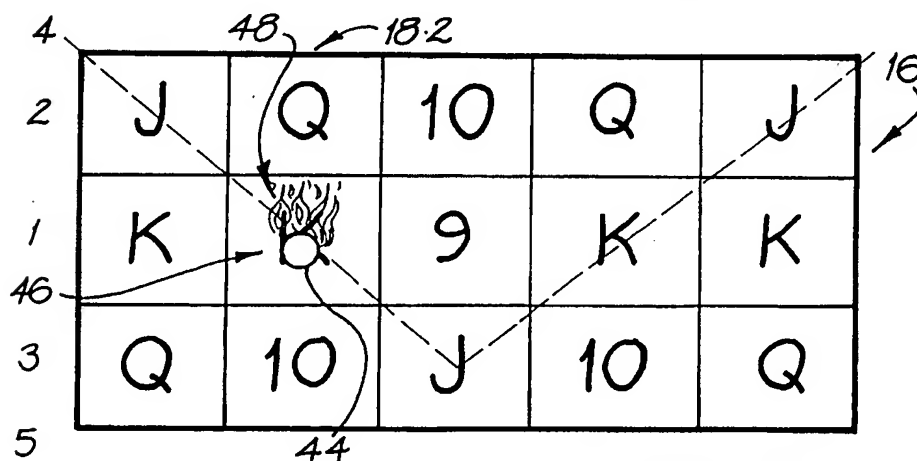


FIG. 5

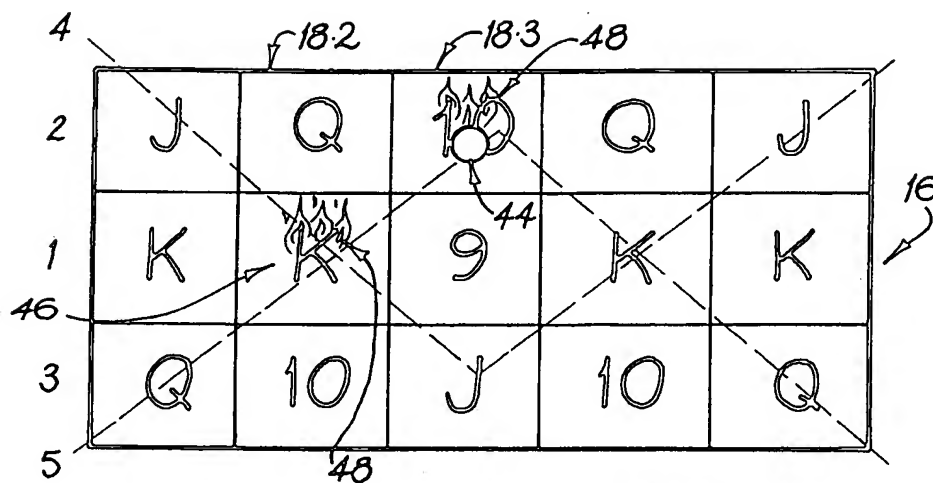


FIG. 6

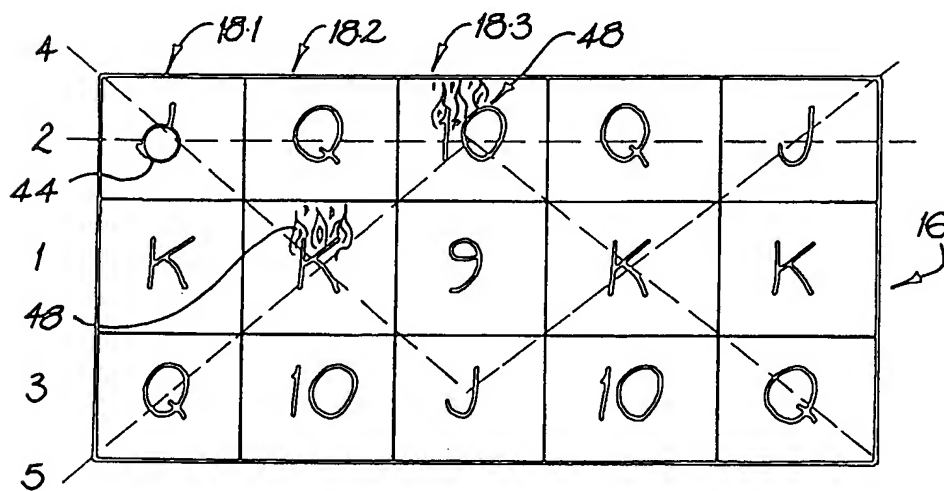


FIG. 7

<i>B</i>	CABIN	10	WAGON	QUEEN
JACK	10	WAGON	JACK	KING
KING	KING	QUEEN	9	9

FIG. 8

<i>B</i>	CABIN	10	WAGON	QUEEN
JACK	10	WAGON	JACK	KING
KING	KING	QUEEN	9	9

FIG. 9

<i>B</i>	CABIN	10	WAGON	QUEEN
JACK	10	WAGON	JACK	KING
KING	KING	QUEEN	9	9

FIG. 10

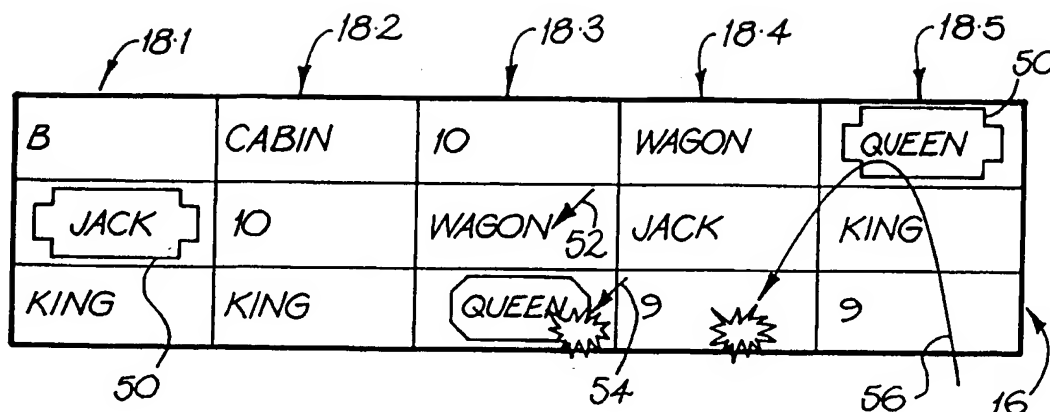


FIG. 11

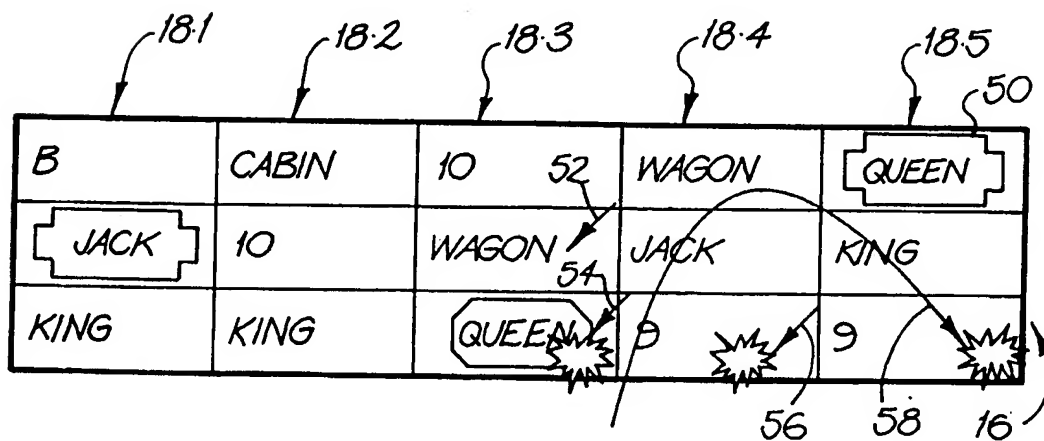


FIG. 12



## INTERNATIONAL SEARCH REPORT

International application No.

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b>												
Int. Cl. <sup>7</sup> : A63F 13/00, 5/04; G07F 17/34												
According to International Patent Classification (IPC) or to both national classification and IPC												
<b>B. FIELDS SEARCHED</b>												
Minimum documentation searched (classification system followed by classification symbols) IPC A63F 5/04, 9/22, 13/00; G07F 17/34												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU:IPC AS ABOVE												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT, USPTO												
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
P,A	AU 43488/99A, ARISTOCRAT LEISURE INDUSTRIES PTY LTD, 2 March 2000											
P,A	US 6126542A, FIER, 3 October 2000											
P,A	WO 00/32286A, ARISTOCRAT LEISURE INDUSTRIES PTY LTD, 8 June 2000											
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input type="checkbox"/> See patent family annex												
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
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Date of the actual completion of the international search 27 November 2000		Date of mailing of the international search report 1 - DEC 2000										
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer  S KAUL Telephone No : (02) 6283 2182										

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/01233

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Derwent abstract accession no 97-248017/23, Class W04, FR 2739954, UNIVERSAL SALES CO LTD, 18 April 1997	